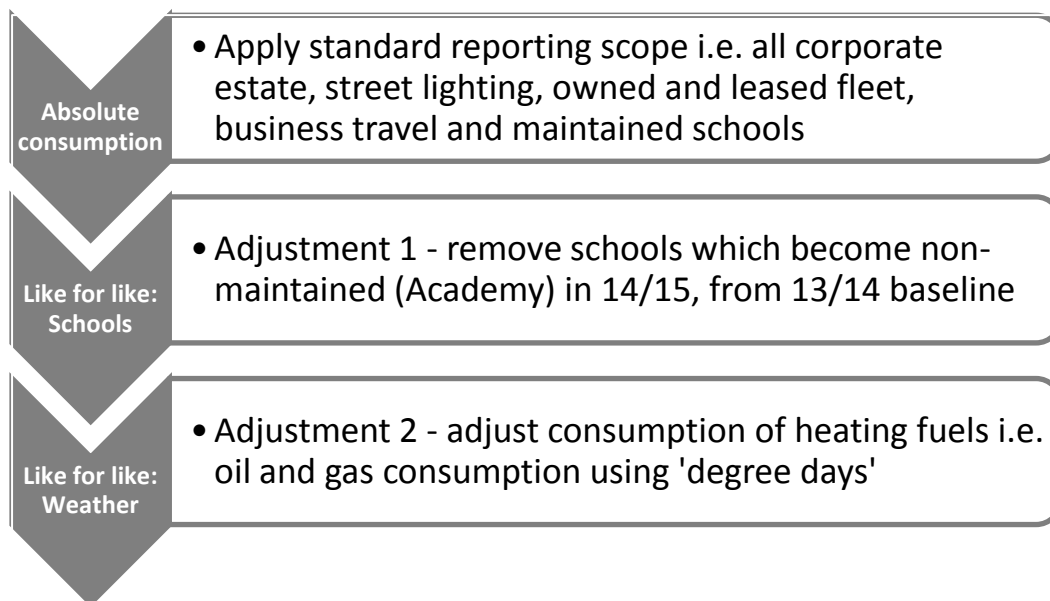


Annex A: Consumption of energy resources and carbon emissions arising (2014/15 vs 2013/14 baseline)

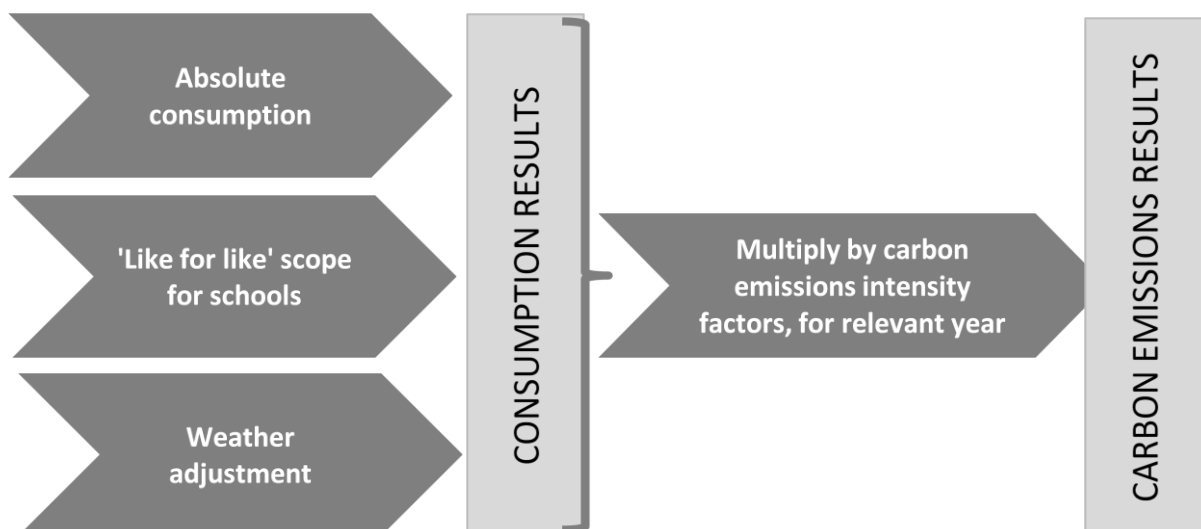
The data contained in this report to Overview Board aims to present a transparent and fair comparison between the baseline year of 13/14 and the year for which performance is being considered i.e. 14/15. The process for establishing this 'reasonable' comparison makes a number of adjustments to remove distorting factors, which is set out in Figure 1. We do this because we do not wish to take undue credit, in terms of energy consumption or carbon emissions reductions, for changes which arise from either schools leaving our scope of reporting (as in the case of converting to Academies) or from experiencing less demand for heating due to a warmer than average winter. Nor would we want to accept responsibility for any increased demand due to a colder than average winter.

Figure 1: Process for adjusting consumption to present comparable results



The carbon emissions arising from consumption are then calculated by applying the relevant 'carbon factor' for each consumption area e.g. diesel for vehicles, gas for heating, electricity or an average figure per mile driven in a car. This enables a unified measure of the environmental impact of the council's operations in terms of greenhouse gases, which is expressed in tonnes of carbon dioxide equivalent.

Figure 2: Process for calculating carbon emissions arising from operations



Other factors which influence consumption but are not adjusted for:

Finally, even though two variables are adjusted for i.e. schools leaving our reporting scope and variation in heating demand due to weather variations, there are a large number of further factors which influence energy consumption but for which no adjustment is made, because to do so would be an excessively time consuming and inaccurate endeavour. Therefore these factors remain as an influencing factor in the consumption of energy resources.

These factors include, but are not limited to:

Number of schools places

Number of staff in corporate buildings

Operational hours of schools or corporate buildings

Acquisitions and disposals in estate where level of service is maintained

Influence of weather on consumption of electricity e.g. In buildings with electric heating

Variations in demand for services e.g. Fire and Rescue Service response to events such as flooding, which occur more severely in some years than others.

Annex A continued: Data

ABSOLUTE CONSUMPTION	Units	13/14	14/15	Change since 13/14
Corporate Oil and Gas	kwh	32,733,022	31,249,317	-4.5%
Corporate Electricity	kwh	18,610,986	18,060,449	-3.0%
Maintained schools Oil and Gas	kwh	73,168,447	68,198,257	-6.8%
Maintained schools Electricity	kwh	25,915,736	24,989,926	-3.6%
Street lighting	kwh	33,219,254	32,340,484	-2.6%
Fuel for vehicles	litres	589,229	465,697	-21.0%
Business travel	miles	10,057,673	9,016,001	-10.4%
OVERALL	n/a	n/a	n/a	n/a

ADJUSTED CONSUMPTION	Change since 13/14		
	Change since 13/14	Like for like schools*	Weather correction
Corporate Oil and Gas	-4.5%	-4.5%	-0.7%
Corporate Electricity	-3.0%	-3.0%	-3.0%
Maintained schools Oil and Gas	-6.8%	-3.9%	0.0%
Maintained schools Electricity	-3.6%	0.4%	0.4%
Street lighting	-2.6%	-2.6%	-2.6%
Fuel for vehicles	-21.0%	-21.0%	-21.0%
Business travel	-10.4%	-10.4%	-10.4%
OVERALL	n/a	n/a	n/a

CARBON EMISSIONS FACTORS	Units	13/14 factor	14/15 factor	Change since 13/14
Oil	kg CO ₂ e/kwh	0.2718	0.2721	0.1%
Gas	kg CO ₂ e/kwh	0.1840	0.1850	0.5%
Electricity (see Note 1)	kg CO ₂ e/kwh	0.4836	0.5375	11.1%
Diesel	kg CO ₂ e/litre	2.6008	2.6024	0.1%
Petrol	kg CO ₂ e/litre	2.2144	2.1914	-1.0%
Mileage, average car	kg CO ₂ e/mile	0.3061	0.3049	-0.4%

Note 1: Electricity factors are determined by the fuel mix used in the national grid, in any given year. The 14/15 coefficient increasing (i.e. worsening by 11% compared to 13/14) is due to a number of factors; principally some nuclear generation went offline and more coal was consumed due to global fuel price fluctuations linked to US shale gas activity. There is a time lag in data between the actual grid activity, so factors for 14/15 are in fact calculated from actual market conditions and grid generation in 2012. The grid factor published for 15/16 shows a reduction of 6% compared to 14/15.

Annex A continued: Data

ABSOLUTE CARBON EMISSIONS	Units	13/14	14/15	Change since 13/14
Corporate Oil and Gas	tonnes CO ₂ e	6,125	5,837	-4.7%
Corporate Electricity	tonnes CO ₂ e	9,000	9,707	7.9%
Maintained schools Oil and Gas	tonnes CO ₂ e	26,665	26,575	-0.3%
Maintained schools Electricity	tonnes CO ₂ e	12,532	13,432	7.2%
Street lighting	tonnes CO ₂ e	16,064	17,382	8.2%
Fuel for vehicles	tonnes CO ₂ e	1,526	1,203	-21.2%
Business travel	tonnes CO ₂ e	3,057	2,744	-10.2%
OVERALL	tonnes CO ₂ e	62,436	63,450	1.6%

ADJUSTED CARBON EMISSIONS	Change since 13/14		
	Absolute	Like for like schools*	Weather correction
Corporate Oil and Gas	-4.7%	-4.7%	-1.4%
Corporate Electricity	7.9%	7.9%	7.9%
Maintained schools Oil and Gas	-0.3%	-4.2%	-0.4%
Maintained schools Electricity	7.2%	11.6%	11.6%
Street lighting	8.2%	8.2%	8.2%
Fuel for vehicles	-21.2%	-21.2%	-21.2%
Business travel	-10.2%	-10.2%	-10.2%
OVERALL	1.6%	3.1%	4.3%

Overall adjusted change in carbon emissions in 14/15 compared to baseline year: 4.3% increase.